Perineal Urethrostomy: Still Essential in the Armamentarium for Transurethral Surgery

Dimitri Papagiannopoulos, MD, Leslie A. Deane, MBBS, FRCSC, FACS
Department of Urology, Rush University Medical Center, Chicago, IL

A 69-year-old morbidly obese man presented with hematuria caused by a large anterior wall bladder tumor. The mass was inaccessible for resection by standard means due to the patient's obesity and phallic length. A perineal urethrostomy was required to enable complete resection. This age-old technique is revisited for the benefit of this generation's urologists.

[Rev Urol. *2017;19(1):72-75 doi: 10.3909/riu0742]*

© 2017 MedReviews®, LLC

KEY WORDS

Perineal urethrostomy • Bladder tumor • Transurethral resection

A 69-year-old morbidly obese man (191 kg, body mass index > 50 kg/m^2) presented with gross hematuria. A computed tomography scan revealed a large anterior wall, soft tissue mass, measuring 3.9 × 3.2 cm with a stippled appearance (Figure 1). A standard flexible cystoscope only reached the bladder neck. An Olympus OES Pro 27 Fr resectoscope (Center Valley, PA; working length 26.2 mm, 38 cm) was inserted; the point of most proximal visualization was 1 cm distal to the membranous urethra. A 28 Fr metal sound was introduced down to the bulbar urethra and palpated in the perineum. A No. 15 blade was used to cut down onto the tip of the sound, over which the sheath of the resectoscope was placed; they were interlocked and passed into the bulbar urethra. Under direct vision, the resectoscope was withdrawn and rotated, hugging the ventral wall of the urethra until the verumontanum was seen. The resectoscope was then easily advanced into the bladder and the tumor was completely resected down to deep muscle. A 20 Fr urethral Foley catheter was placed at the end of the case under direct visualization over a wire to atraumatically ensure passage into the bladder. A void trial was successfully

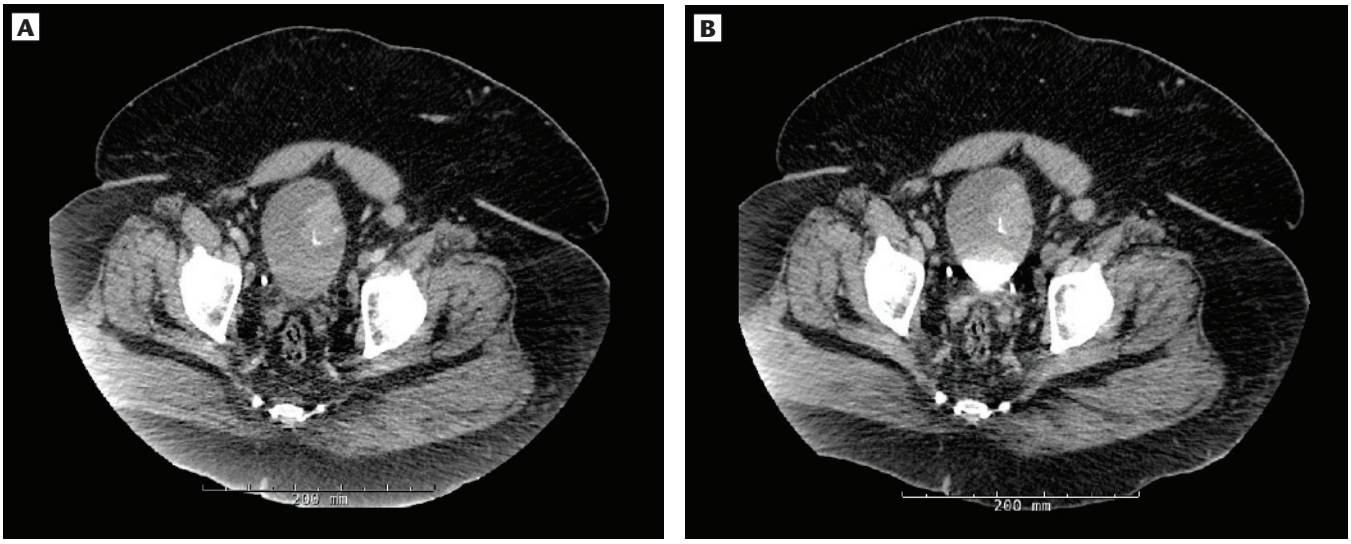


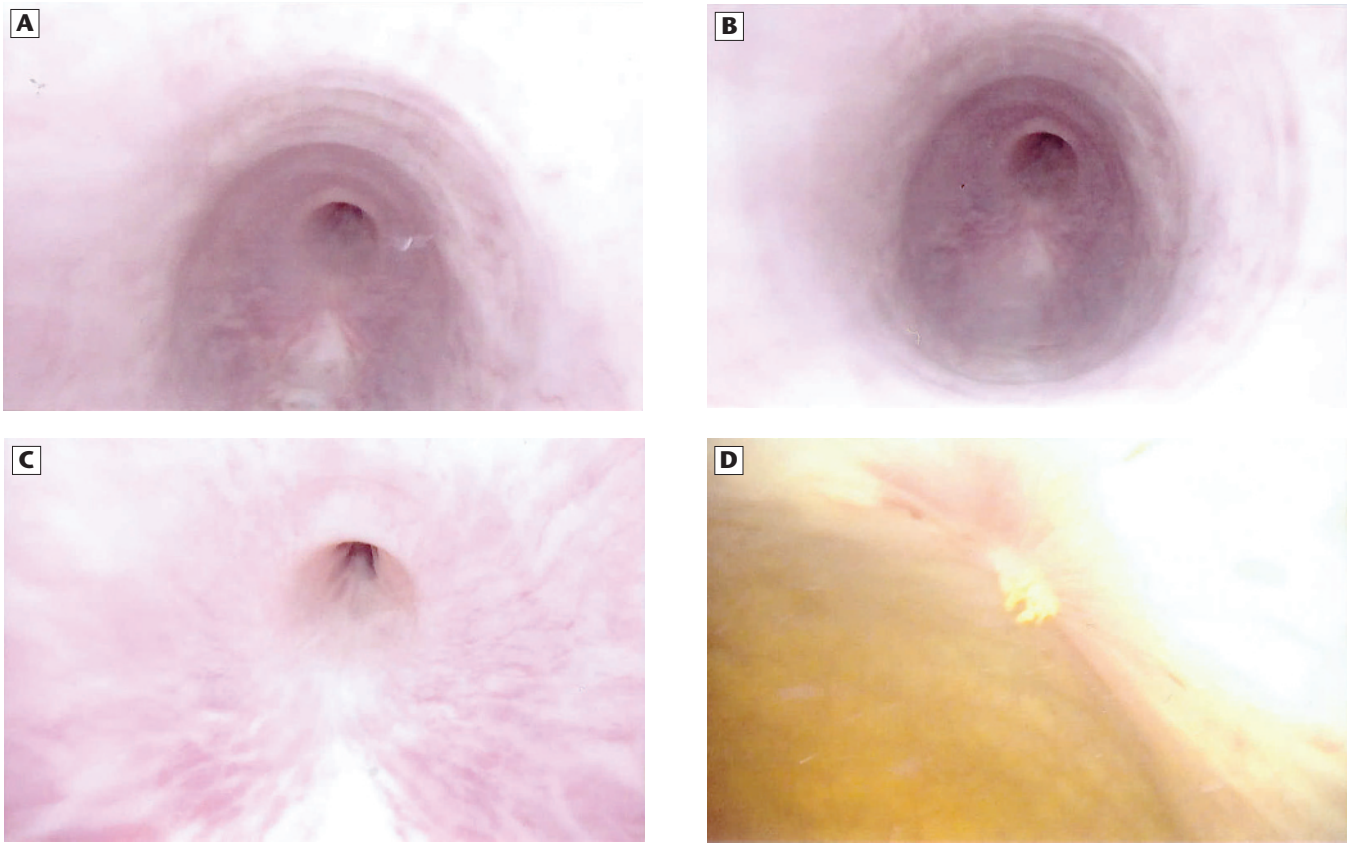
Figure 1. **(A)** Contrast-enhanced computed tomography image showing bladder mass (arterial phase). **(B)** Delayed phase.

performed on postoperative day 6. The final pathology showed high-grade T1 urothelial carcinoma. This classic technique remains useful for difficult anterior wall resections. Follow-up cystoscopy 3 months later showed a healed normal urethra and no tumor (Figure 2).

Discussion

Transurethral procedures were first described in the early 1800s, with the blind passage of blades through the perineum up to the bladder neck to relieve obstruction. Due to high rates of hemorrhage, incontinence, and infection, this practice was largely aborted. From 1889 to 1909, three major technologic advances paved the way for modern-day transurethral surgery: the advent of the incandescent lamp, sustained high-frequency current for resection, and a fenestrated tube to engage and shear tissue.[1,2]

Figure 2. **(A-C)** Appearance of urethra at site of perineal urethrostomy at 3 months. **(D)** Resection site with no evidence of recurrence.



In 1932, Maximilian Stern invented the resectoscope.[3]

Transurethral resection procedures of the prostate or bladder often require larger sheaths for the sake of visualization. In the past, with poor lens optics and older irrigation systems, the operative surgeon would often require large sheaths (28 Fr or above) to obtain adequate visualization.[4] Performing resections with these large sheaths along the length of the urethra led to a high incidence of anterior urethral strictures, particularly of the fossa navicularis.[5] Creation of a perineal urethrostomy for transurethral procedures was largely adopted to reduce the risk of urethral strictures, and appeared highly effective. In a 1977 study, patients were randomized into perineal urethrostomy or standard cystourethroscopy groups for a transurethral resection of the prostate. The authors identified significantly lower stricture rates in the perineal urethrostomy arm (2.3% vs 16.4%; $P < .01$).[6] To allow for healing, a urethral Foley catheter should be inserted from the meatus into the bladder, not via the urethrostomy site. Most experts suggest that catheter duration of 72 hours is adequate to allow for complete healing of the urethrostomy and minimize postoperative perineal leakage.[7]

Transurethral resection procedures of the prostate or bladder often require larger sheaths for the sake of visualization.

Creation of a perineal urethrostomy for transurethral procedures was largely adopted to reduce the risk of urethral strictures, and appeared highly effective.

In recent years, advancements in lens optics, light intensity, and irrigation have improved visualization significantly. As such, transurethral procedures can often be performed through smaller sheaths (24 or 26 Fr), decreasing the risk of postoperative stricture formation. Because of this, and a trend toward minimally invasive procedures, the perineal urethrostomy has fallen out of favor and is not regularly encountered or taught in residency training.

Although urologists have largely moved away from perineal urethrostomy, there are situations in which it is a preferable (or the only) alternative: morbid obesity, long pendulous urethra, preoperatively present anterior urethral strictures, body contractures, and previous penile prosthesis implant.[8] The angle required for resection of an anterior bladder neck tumor may also be preferable via a perineal urethrostomy. For these reasons, and those highlighted in the case above, we feel that the perineal urethrostomy technique should remain within the armamentarium of practicing urologists. ■

The angle required for resection of an anterior bladder neck tumor may also be preferable via a perineal urethrostomy.

MAIN POINTS

- Transurethral procedures were first described in the early 1800s, with the blind passage of blades through the perineum up to the bladder neck to relieve obstruction. Due to high rates of hemorrhage, incontinence, and infection, this practice was largely discontinued.
- In years past, poor lens optics and older irrigation systems would require that the operative surgeon use large sheaths (28 Fr or above) to obtain adequate visualization for transurethral resection of the prostate or bladder. This predisposed patients to meatal or pendulous urethral strictures, leading to increased utilization of the perineal urethrostomy.
- In recent years, advancements in lens optics, light intensity, and irrigation have improved visualization significantly. As such, transurethral procedures can often be performed through smaller sheaths (24 or 26 Fr), decreasing the risk of postoperative stricture formation and reducing the need for perineal urethrostomy access.
- Although urologists have largely moved away from perineal urethrostomy, there are situations in which it is a preferable (or the only) alternative: morbid obesity, long pendulous urethra, preoperatively present anterior urethral strictures, body contractures, and previous penile prosthesis implant. Therefore, the perineal urethrostomy technique should remain within the armamentarium of practicing urologists.

References

1. Mebust WK, Valk WL. Transurethral prostatectomy. In: Hinman F Jr, Boyarsky S, Caine M, et al, eds. *Benign Prostatic Hypertrophy*. New York, NY: Springer-Verlag; 1983:829-846.
2. Nesbit RM. Transurethral prostatic resection: a discussion of some principles and problems. *J Urol.* 1951;66:362-372.
3. Herr HW. The enlarged prostate: a brief history of its surgical treatment. *BJU Int.* 2006;98:947-952.
4. Madsen P, Iversen P, Hinman F. Benign prostatic hypertrophy. In: Hinman F Jr, Boyarsky S, Caine M, et al, eds. *Benign Prostatic Hypertrophy*. New York, NY: Springer-Verlag; 1983:829-846.
5. Nielsen KK, Nordling J. Urethral stricture following transurethral prostate prostatectomy. *Urology*. 1990;35:18-24.
6. Bissada NK. Transurethral resection of prostate via perineal urethrostomy: follow-up report. *Urology*. 1977;10:39-41.
7. Sokoloff M, Kiarash M, Smith R. Complications of transurethral resection of the prostate. In: Taneja SS, ed. *Complications of Urologic Surgery: Prevention and Management*. 4th ed. Philadelphia, PA: Saunders Elsevier; 2010:279-294.
8. Gingu C, Crăsneanu M, Dick A, et al. Perineal urethrostomy–fast and safe access for TURB in associated long penile urethral stricture cases. *Revista Românæ de Urologie*. 2014;13:14-17.